ZNYX

NetBlaster™ ZX470 Series User's Guide

Fast Ethernet Adapters with Hot-Swap and Rear I/O
for Compact PCI Systems

ZNYX

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Thank you for choosing the ZNYX NetBlaster 470 Series CompactPCI (cPCI) Fast Ethernet Adapter. The NetBlaster 470 series is a fully featured product family of carrier Class CompactPCI Fast Ethernet adapters for high availability applications requiring state-of-the-art LAN interfaces. The 470 series features:

- Four or Eight channel configurations, 6U form-factor
- Rear I/O via passive 6U x 80mm rear transition module
- Hot swap capability
- 64-bit data bus
- Designed for NEBS Level 3 systems

Your adapter is designed to provide a lifetime of superior service in your system with cPCI slots.

NetBlaster ZX470 Series Fast Ethernet Adapter Models

Model	Fast Ethernet Channels	cPCI Slot
ZX474	Four 10/100 Mbps	6U
ZX478	Eight 10/100 Mbps	6U
ZX404H	Four-channel rear transition module hub connector (MDI-X)	6U
ZX404HAB	Four-channel rear transition module hub connector (MDI-X) with Type-AB interconnect	6U
ZX408H	Eight-channel rear transition module hub connector (MDI-X)	6U
ZX408HAB	Eight-channel rear transition module hub connector (MDI-X) with Type-AB interconnect	6U
ZX404A	Four-channel rear transition module adapter connector (MDI)	6U
ZX404AAB	Four-channel rear transition module adapter connector (MDI) with Type-AB interconnect	6U
ZX408A	Eight-channel rear transition module adapter connector (MDI)	6U
ZX408AAB	Eight-channel rear transition module adapter connector (MDI) with Type-AB interconnect	6U

Documentation and Software

Documentation and software for the NetBlaster adapter is distributed electronically. You can retrieve most recent drivers and documentation and drivers from the ZNYX web site, www.znyx.com in the driver download section. Please contact ZNYX Customer Support at (800) 724-0911 if you have trouble locating the appropriate driver or installation documentation.

Installation Procedure

There are two basic steps you need to follow to operate the NetBlaster adapter.

1. Install the hardware (NetBlaster adapter and rear transition card).
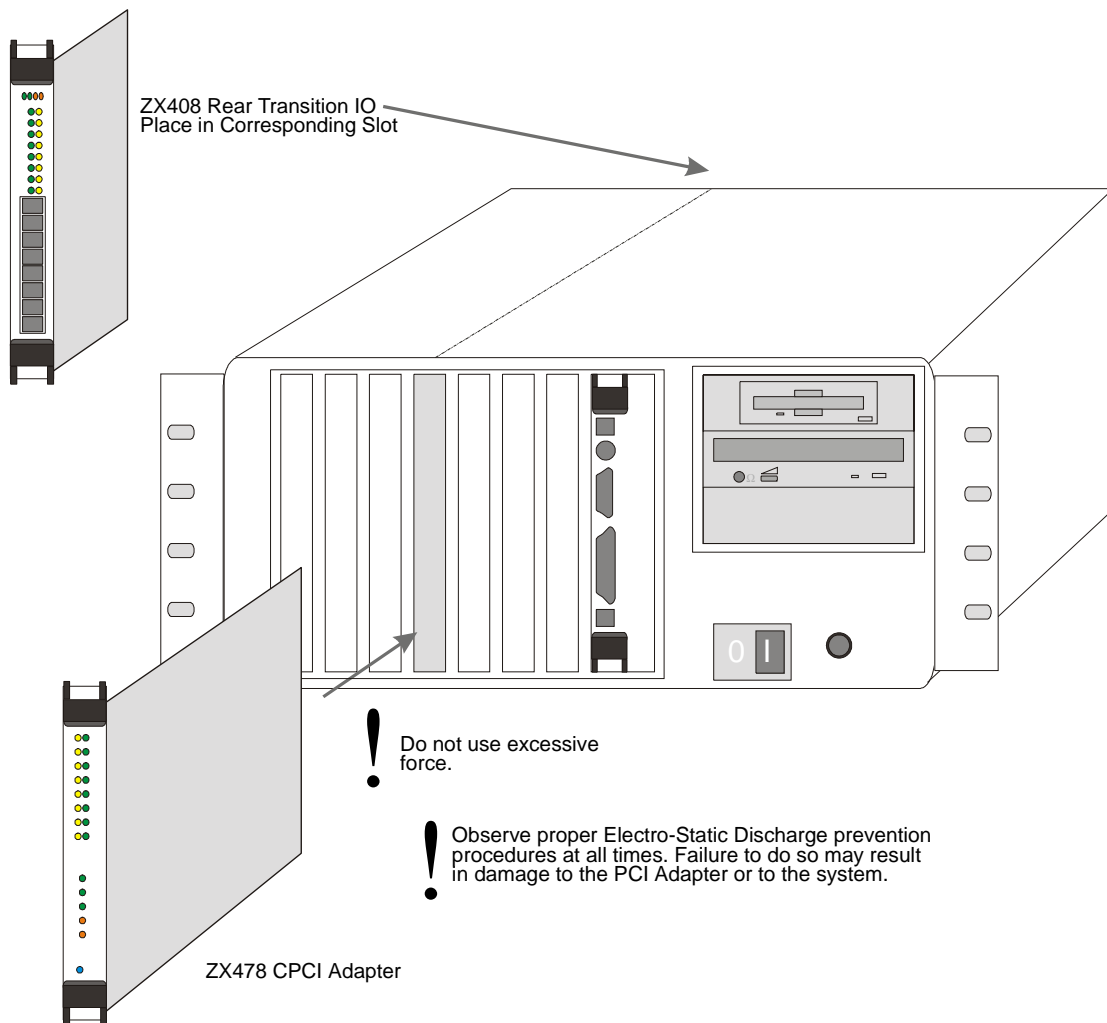2. Install the driver.

Hardware Installation

Below are the steps necessary to install a NetBlaster adapter into a standard cPCI system.

Installing the Hardware

This procedure is for installing NetBlaster 470 Series cPCI adapter into a system with an available 6U cPCI slot. The ZX470 requires a cPCI chassis that supports Rear Panel I/O. You must also use the appropriate rear transition module for your configuration. Some steps in this procedure may vary depending on the specific system used. Refer to the system's documentation if necessary. The figure below shows the installation of an adapter in a typical system.

ZX408 Rear Transition IO
Place in Corresponding Slot

Do not use excessive force.

Observe proper Electro-Static Discharge prevention procedures at all times. Failure to do so may result in damage to the PCI Adapter or to the system.

ZX478 CPCI Adapter

1. Turn off your system.

2. Discharge any static electricity from your body by touching the metal chassis, or by using an anti-static wrist strap. If you do not have a ground strap, maintain physical contact with the case to maintain the same electrical potential with the system.

3. Select an available CompactPCI slot to install the ZNYX NetBlaster adapter. Remove the slot cover from the front panel. Remove the corresponding cover from the slot on the rear I/O panel.

4. Insert the ZNYX adapter into the slot. Make certain that you push the adapter straight into the slot; the bracket and the slot must be properly aligned and the adapter fully seated. The bracket is well seated when it touches the system case up to the extraction levers.

5. Pull up on the extraction levers to finish seating the adapter, and secure the retention screws.

6. Insert the ZNYX rear transition module into the corresponding slot in the rear panel of the chassis.

> Note: Exercise extreme care when inserting the rear transition card into the chassis. Improper alignment of the rear transition card connector with the rear panel connector pins can damage the pins.

Make certain that you push the adapter straight into the slot; the bracket and the slot must be properly aligned and the adapter fully seated. A good seat is achieved when the bracket touches the system case, up to the extraction levers.

Rear transition modules are available with Type-B or Type-AB connectors. Type-AB connectors include guide pins to aid in properly aligning the rear transition module for insertion. A backplane that is only Type-B capable will not accept a Type-AB connector on the rear transition module.

Type-B   **Type-AB**
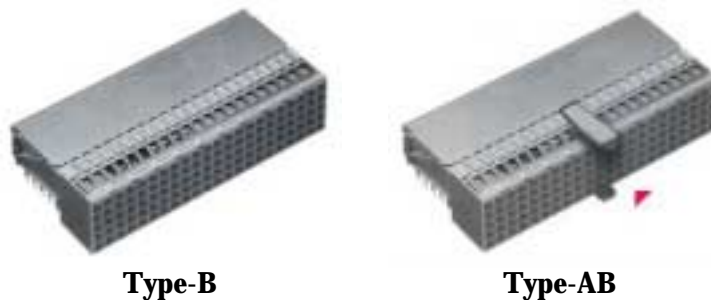
7. Pull up on the extraction levers to finish seating the adapter and secure the retention screws.

LAN Cable Connection

The LAN cable must be properly attached to a functioning network for the adapter to operate. 100 Mbps connections require Category 5 cabling. here are two ways to connect the system using twisted pair: (1) system to system; (2) direct system to hub or switch. You can connect your adapter directly to another system with a null cable. A null cable, or crossover cable, "crosses over" transmit and receive pairs.

You can connect your adapter directly to a hub or switch with an unshielded twisted-pair (UTP) cable. Make certain that the cable length is within the minimum and maximum length restrictions for Ethernet, or you could experience signal or data loss.

Driver Installation

This section covers driver installation for the NetBlaster adapter. At this stage the adapter should be secure in the system and all Ethernet cables should be attached. If this is not the case, return to the "Hardware Installation" procedure in the previous section.

Download the specific driver for your system from the ZNYX web site (www.znyx.com). Included on the web site with the driver are release notes with installation and configuration instructions. Follow the directions on line to configure the driver.

Running DOS Diagnostics

DOS-based diagnostics are also available from the ZNYX web site (www.znyx.com) to help troubleshoot hardware problems. If you believe you have a hardware problem, and have the capability to run DOS-based diagnostics, the steps below outline the use of the diagnostics.

Testing ZX478 Adapters in DOS

1. Run the diagnostic program to see if your adapter has been properly configured. Run DIAG478.EXE off your diskette by entering:

   ```
   >DIAG478 LIST
   ```

2. You will see a list below. (This example is for the ZX478.)

```
DIAG478 Version 2.04 for ZNYX NetBlaster ZX478  8/100  Mbps adapter
(c) Copyright 1994-1999 ZNYX Corporation - All Rights Reserved.
PCI BIOS Information: Version=2.10, Config Mechanism=1, Last Bus=2

Bus Dev Fn   Vendor Device Rev   Type           Lat IL IRQ   Note
==========   ================   ============   ==========   =====
0   0   0    8086   1250   03    Host Bridge    20  -  -
0   7   0    8086   7000   01    PCI-ISA        00  -  -
0   7   1    8086   7010   00    IDE            20  -  -
1   0   0    8086   7800   21    VGA             0  A  5
2   12  0    1011   0046   01    Ethernet       73  A  10    ZX478
2   412 0    1011   0019   41    Ethernet       73  A  10    ZX478
2   512 0    1011   0019   41    Ethernet       73  A  10    ZX478
2   612 0    1011   0019   41    Ethernet       73  A  10    ZX478
2   712 0    1011   0019   41    Ethernet       73  A  10    ZX478
2   812 0    1011   0019   41    Ethernet       73  A  10    ZX478
2   912 0    1011   0019   41    Ethernet       73  A  10    ZX478
2  1012 0    1011   0019   41    Ethernet       73  A  10    ZX478
2  1112 0    1011   0019   41    Ethernet       73  A  10    ZX478
```

3. You should see nine Ethernet-type devices (one the bridge, and one for each of the eight ports), and the "Note" column should indicate the device to be a ZX478. Each should have an **IRQ** (interrupt line), **bus** value, and a unique **device** number. If so, your card has been automatically configured. Make a note of the *bus* and *device* numbers and go on to the software installation section.

4. To test all channels of your adapter, run DIAG478 for each bus number and device number. For example, if you have a ZX478 the bus number is 2 and the device numbers are 412 and 512, run:

```
>DIAG478   2   412
>DIAG478   2   512
```

5. If the DIAG478 program says:

```
Running diagnostics for ZX478 channel at Bus #2, Device #412
Configuration: I/O=400E800, IRQ=10, Node=00C095C003D0, PROM=Version 4/AI
Diagnostics successfully completed.
```

each time, proceed with the software installation.

6. If the DIAG478 program does not indicate a successful completion, refer to the next section on Troubleshooting.

Troubleshooting

1. Make sure the board is securely seated in the slot.

2. Observe the LED's. Each port on the ZX478 has a LINK (green) LED and an ACTIVITY (amber) LED. The green LED illuminates upon successfully establishing a link. The amber LED illuminates during transmit/receive activity. Note: In most cases, the driver must be properly loaded and configured to bring up the link. It is off if there is no link established.

   Each ZX478 also has LED's for Power, Operational, Internal and External fault indicators. The status LED is duplicated on both the front and rear panels. The front panel also includes an LED indicating continuity with the Rear-Transition Module. The front panel also includes the industry-standard blue LED next to the bottom Hot-Swap ejector tab. The LED's are defined by the following table:

Label	Color	Function
Power	Green	ON indicates power.
Operational	Green	ON indicates driver loaded and board has passed internal tests.
Rear Panel	Green	ON indicates electrical continuity between adapter and rear-transition module.
Internal Fault	Amber	ON indicates a failure of the internal tests.
External Fault	Amber	ON indicates a failure external to the adapter- inability to establish link on a configured port, or another connectivity problem external to the adapter.
Hot Swap	Blue	ON during removal/insertion of adapter, signifying system readiness for transition.
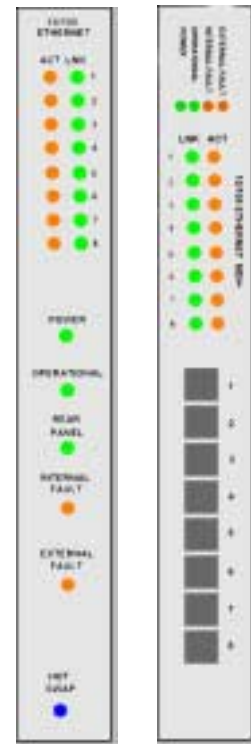
3. Refer to operating system specific documentation to evaluate any error messages or logs when the driver is loaded.

Technical Support

If you need further assistance after referring to this User's Guide, ZNYX has a professional technical support team available to answer your questions. Contact us at:

Telephone: (510) 249-0800 or (800) 724-0911
Fax: (510) 646-2460
Email: support@znyx.com
Website: www.znyx.com

You can reach us during normal business hours, Pacific Standard Time.

Appendix A: Legal Notices and Certification

FCC Class A Notice: NETBLASTER ZX470 SERIES

Modification to this product not authorized by ZNYX Corporation could void the FCC approval and negate your authority to operate the product.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if it is not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada Compliance:

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numeriqué de la classe A est conforme à la norme NMB-003 du Canada.

CE Conformity:

The ZX470 Series is in compliancewith the following standards:

EN 55022(1998)   Class A
EN 55024 (1998)
EN 61000-4-11 (1995)   EN 60950 (1992) + Amendments 1, 2, 3, 4, and 11
EN 60950 (1992) + Amendments 1, 2, 3, 4, and 11

THIS ADAPTER CARD IS FOR USE ONLY WITH COMPACT PCI BUS COMPATIBLE SYSTEMS THAT HAVE ENCLOSED POWER SUPPLIES WITH SELV OUTPUTS AND INSTALLATION INSTRUCTIONS DETAILING USER INSTALLATION OF CARD CAGE ACCESSORIES.

Manufacturer Name: ZNYX Networks
Manufacturer Address: 48421 Milmont Drive, Fremont, CA 94538

Warranty

ZNYX Networks warrants to the original purchaser of any ZNYX NetBlaster PMC Fast Ethernet adapter product that is to be free from defects in workmanship and materials, under normal use and service, for the lifetime of the personal computer in which it is installed from the date of purchase from ZNYX or its authorized dealer. In order for this warranty to be valid, this hardware product must remain in its original personal computer and be registered with ZNYX within one year of purchase. Otherwise, ZNYX warrants to the original purchaser of this hardware product that it is to be in good working order for a period of thirty-six (36) months from the date of purchase from ZNYX or an authorized dealer.

Should this product, in ZNYX's opinion, malfunction during the applicable warranty period, ZNYX will, at its expense, repair the defective product or part or, at its option, deliver to the Customer an equivalent product or part to replace the defective item. To prevent damage in transport, the Customer must return the product in its original packaging or, if this is not available, other protective packaging approved in advance by ZNYX. All returned products will become the property of ZNYX. At ZNYX's option, replacement parts may be new or reconditioned. Any replaced product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

This limited lifetime warranty applies to the following ZNYX products only ZX474 and ZX478. ZNYX warrants all other product(s) for a period of thirty-six (36) months from the date of purchase from ZNYX, under the same limited warranty terms and conditions.